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10. A mutant *ras* peptide comprising
Xaa₁ Leu Xaa₂ Val Val Gly Ala Xaa₃ Gly Val;
wherein Xaa₁ is the amino acid lysine or tyrosine;
wherein Xaa₂ is an amino acid;
wherein Xaa₃ is selected from the group consisting of aspartic acid, valine,
cysteine, alanine, arginine, and serine;
with the proviso that when Xaa₂ is valine, Xaa₃ is tyrosine
and said peptide elicits peptide-specific human CD8+ cytotoxic T
lymphocytes.
11. The mutant *ras* peptide according to claim 10 wherein the peptide
comprises an amino acid sequence of about 13 amino acids.
12. The mutant *ras* peptide according to claim 10 wherein the peptide
comprises an amino acid sequence of about 10 amino acids.
13. The mutant *ras* peptide according to claim 10, 11 or 12 wherein
Xaa₁ is tyrosine.
14. The mutant *ras* peptide according to claim 10, 11, 12 or 13 wherein
Xaa₂ is selected from the group consisting of valine, tryptophan, leucine, tyrosine,
and phenylalanine.
15. The mutant *ras* peptide according to claim 10, 11, 12, 13 or 14
wherein Xaa₁ is tyrosine and Xaa₂ is aspartic acid.
16. The mutant *ras* peptide according to claim 10, 11, 12, 13 or 14
wherein Xaa₁ is tyrosine and Xaa₂ is valine.
17. The mutant *ras* peptide according to claim 10, 11, 12, 13 or 14
wherein Xaa₁ is tyrosine and Xaa₂ is cysteine.
18. The mutant *ras* peptide according to claim 10, 11, 12, or 14 wherein
Xaa₁ is lysine and Xaa₂ is aspartic acid.
19. The mutant *ras* peptide according to claim 10, 11, 12 or 14 wherein
Xaa₁ is lysine and Xaa₂ is valine.

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28. An immunogen comprising a mutant *ras* peptide wherein the mutant *ras* peptide is generated from a 13 mer mutant *ras* peptide, said 13 mer mutant *ras* peptide comprising:

Xaa₁ Leu Xaa₂ Val Val Gly Ala Xaa₃ Gly Val Gly Lys Ser

wherein Xaa₁ is the amino acid lysine or tyrosine;

wherein Xaa₂ is an amino acid;

wherein Xaa₃ is selected from the group consisting of aspartic acid, valine, cysteine, alanine, arginine, and serine;

with the proviso that when Xaa₂ is valine, Xaa₃ is tyrosine;

said immunogen elicits mutant *ras* peptide-specific human CD8⁺ cytotoxic T lymphocytes.

29. An immunogen for eliciting mutant *ras* peptide-specific human CD8⁺ cytotoxic T lymphocytes comprising a mutant *ras* peptide consisting essentially of:

Tyr Lys Leu Val Val Val Gly Ala Xaa

wherein Xaa is selected from the group consisting of aspartic acid, valine, cysteine, alanine, arginine, and serine; and said peptide elicits peptide-specific human CD8⁺ cytotoxic T lymphocytes.

30. The immunogen according to claim 29 wherein the human CD8⁺ cytotoxic T lymphocytes are HLA-A2 restricted.

31. The immunogen according to claim 29 or 30 wherein the mutant *ras* peptide consists of SEQ. ID NO.: 6.

32. A pharmaceutical composition comprising the mutant *ras* peptide of claims 1-30 or 31 and a pharmaceutically acceptable carrier.

33. The pharmaceutical composition according to claim 32, further comprising a biological response modifier.

34. The pharmaceutical composition according to claims 32 or 33, further comprising an adjuvant, a liposome formulation, or an antigen presenting cell.

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35. The pharmaceutical composition according to claim 34 wherein the adjuvant is RIBI Detox™, QS21, alum or incomplete Freund's adjuvant.

36. The pharmaceutical composition according to claims 33, 34 or 35 wherein the biological response modifier is selected from the group consisting of interleukin 2.

37. The pharmaceutical composition according to claims 32-35 or 36, further comprising interleukin 2, interleukin 6, interleukin 12, interferon, tumor necrosis factor, GM-CSF, cyclophosphamide, β_2 -microglobulin or combinations thereof.

38. A pharmaceutical composition comprising a combination of at least two mutant *ras* peptides and a pharmaceutically acceptable carrier, said combination of mutant *ras* peptides selected from the group consisting of:

A) Xaa, Leu Xaa, Val Val Gly Ala Xaa, Gly Val;

wherein Xaa₁ is the amino acid lysine or tyrosine;

wherein Xaa₂ is an amino acid;

wherein Xaa, is selected from the group consisting of aspartic acid, valine, cysteine, alanine, arginine, and serine;

with the proviso that when Xaa_2 is valine, Xaa_1 is tyrosine,

and said peptide elicits peptide-specific human CD8⁺ cytotoxic T

lymphocytes;

B) Tyr Lys Leu Val Val Val Gly Ala Xaa

wherein Xaa is selected from the group consisting of aspartic acid,

valine, cysteine, alanine, arginine, and serine;

and said peptide elicits peptide-specific human CD8⁺ cytotoxic T

lymphocytes; and

C) Xaa₁ Leu Xaa₂ Val Val Gly Ala Xaa₃ Gly Val Gly Lys Ser

wherein Xaa, is the amino acid lysine or tyrosine;

wherein Xaa_2 is an amino acid;

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cytokines, said amount is effective in generating mutant *ras* protein or peptide specific cytotoxic T lymphocytes; and

b. adoptively transferring the mutant *ras* protein or peptide specific cytotoxic T lymphocytes alone, or with a cytokine into a mammal in an amount sufficient to prevent the occurrence, inhibit the growth or kill the tumor cells.

46. Use of the mutant *ras* peptide according to claim 45 wherein the tumor cells are derived from pancreatic cancer, prostate cancer, lung cancer, colon cancer, melanoma, thyroid cancer, endometrial cancer, oral cancer, laryngeal cancer, seminoma, hepatocellular cancer, bile duct cancer, acute myeloblastic leukemia, basal cell carcinoma, or squamous cell carcinoma.

47. Use of the mutant *ras* peptides according to claims 45 or 46 wherein the method further comprises the administration of a biological response modifier selected from the group consisting of interleukin 2, interleukin 6, interleukin 12, interferon, tumor necrosis factor, GM-CSF and cyclophosphamide.

48. Use of the mutant *ras* peptide according to claim 47, wherein the cytokine is interleukin 2.

49. Use of the mutant *ras* peptide according to claims 45-47 or 48 wherein the method further comprises: step c. administration of a booster amount of a mutant *ras* peptide into the mammal.

50. Use of a mutant *ras* peptide according to claims 1-24 or 27-31 for the manufacture of a medicament for use in a method of preventing the occurrence, inhibiting the growth or killing the tumor cells expressing mutant *ras* p21 protein or peptide in a mammal comprising:

a. generating mutant *ras* p21 protein or peptide specific cytotoxic T lymphocytes *in vivo* by administration of an effective amount of a mutant *ras* peptide alone, or in combination with an adjuvant or liposome formulation, and

b. the mutant *ras* p21 protein or peptide specific cytotoxic T lymphocytes so generated prevent the occurrence, inhibit the growth or kill the tumor cells in the mammal.

51. Use of a mutant *ras* peptide according to claim 50 wherein the adjuvant is selected from the group consisting of RIBI Detox™, QS 21, alum and incomplete Freund's adjuvant.

52. Use of the mutant *ras* peptide according to claims 50 or 51 wherein the tumor cells are derived from pancreatic cancer, prostate cancer, lung cancer, colon cancer, melanoma, thyroid cancer, endometrial cancer, oral cancer, laryngeal cancer, seminoma, hepatocellular cancer, bile duct cancer, acute myeloblastic leukemia, basal cell carcinoma, or squamous cell carcinoma.

53. Use of the mutant *ras* peptides according to claims 51, 51 or 52 wherein the method further comprises the administration of a biological response modifier selected from the group consisting of interleukin 2, interleukin 6, interleukin 12, interferon, tumor necrosis factor, GM-CSF, and cyclophosphamide.

54. Use of a mutant *ras* peptide according to claims 1-24 or 27-31 for the manufacture of a medicament for use in a method of eliciting mutant *ras* p21 protein or peptide specific cytotoxic T lymphocytes comprising:

a. exposing a source containing T lymphocytes to a mutant *ras* peptide, and

b. eliciting mutant *ras* p21 protein or peptide specific cytotoxic T lymphocytes.

55. Use of the mutant *ras* peptide according to claim 54 wherein the source of lymphocytes is peripheral blood, lymph node tissue, tumor tissue or effusions.

56. A mutant *ras* p21 protein or peptide specific cytotoxic T lymphocyte elicited by exposure to a mutant *ras* peptide according to any of claims 1-24 or 27-31.

57. The mutant *ras* p21 protein or peptide specific cytotoxic lymphocytes according to claim 56 wherein the lymphocytes are cytotoxic to tumor cells expressing mutant K-, H- or N- *ras* protein or peptide.

58. Use of a mutant *ras* peptide according to claims 1-24 or 27-31 for the manufacture of a medicament for use in a method of eliciting mutant *ras* protein or peptide specific cytotoxic T lymphocytes comprising:

- a. pulsing antigen presenting cells with a mutant *ras* peptide to form mutant *ras* peptide-pulsed antigen presenting cells; and
- b. exposing a source containing T lymphocytes to the mutant *ras* peptide-pulsed antigen presenting cells to elicit the cytotoxic T lymphocytes.

59. Use of the mutant *ras* peptide according to claim 58, wherein the antigen presenting cells are selected from the group consisting of a dendritic cells, B lymphocytes, monocytes and macrophages.

60. Use of a mutant *ras* peptide according to claims 1-24 or 27-31 for the manufacture of a medicament for use in a method of treating cancer in a human comprising: immunization of a human afflicted with a tumor expressing a mutant *ras* p21 protein or peptide with an effective amount of mutant *ras* peptide, said amount is effective in generating a mutant *ras* p21 protein or peptide specific immune response, said immune response is effective in treating the cancer.

61. Use of a mutant *ras* peptide according to claim 60 wherein the cancer is an adenocarcinoma, pancreatic cancer, prostate cancer, colon cancer, lung cancer, endometrial cancer, thyroid cancer, melanoma, oral cancer, laryngeal cancer, seminoma, hepatocellular cancer, bile duct cancer, acute myeloblastic leukemia, basal cell carcinoma, or squamous cell carcinoma.

62. Use of a mutant *ras* peptide according to claims 60 or 61, wherein the immune response is cytotoxicity of the tumor.

63. A mutant *ras* peptide specific cytotoxic T lymphocyte comprising: a T lymphocyte immunoreactive with a mutant *ras* p21 protein or peptide according to claims 1-24 or 27-31 and said T lymphocyte inhibits or kills cells expressing a mutant *ras* p21 protein or peptide wherein the T lymphocyte is MHC class I-

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restricted and has a CD8⁺ phenotype, and wherein the MHC Class I is selected from the group consisting of HLA-A2, HLA-A3, HLA-A11, HLA-A68, and HLA-A24.

64. A mutant *ras* peptide specific cytotoxic T lymphocytes according to claim 63 wherein the T lymphocyte is MHC class I HLA-A2 restricted and has a CD8⁺ phenotype.

65. A mutant *ras* peptide specific cytotoxic T lymphocyte according to claim 63 wherein the MHC class I is selected from the group consisting of HLA-A3, HLA-A11, HLA-A68, and HLA-A24.

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